

NATIONAL SCIENCE FOUNDATION

ARLINGTON, VA 22230

Engineering Directorate Division of Industrial Innovation and Partnerships

Report of the Advisory Committee for Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs

October 25-26, 2012

1.0 INTRODUCTION

The National Science Foundation (NSF) Advisory Committee (AdCom) for the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs met October 24-25, 2012 in Arlington, Virginia, at the National Science Foundation.

Advisory Committee members in attendance included:

Susan Butts

Arlene Garrison

Eugene Krentsel

Tom Knight (Chairman)

William Lockwood-Benet

Richard Paul

Karthik Ramani

Ann Savoca

David Spencer

E. Jennings Taylor

Advisory Committee members absent:

Trish Costello

Karen Kerr

Angus Livingstone

NSF representatives attending all or part of the meeting included:

Thomas Peterson, Assistant Director, ENG

Kesh Narayanan, Deputy Assistant Director, ENG

Cheryl Albus, Director of Strategic Operations, ENG

Alexandra Medina-Borja, Assessment Program Director, ENG

Sandra Chapman, AAAS Fellow, ENG

Josh Chamot, Public Affairs Specialist, NSF OLPA

NSF IIP representatives attending all or part of the meeting included:

Grace Wang, Division Director, IIP

Don Senich, Senior Advisor, IIP

Joseph Hennessey, Senior Advisor, IIP

Prakash Balan, SBIR/STTR Program Director, IIP

Juan Figueroa, SBIR/STTR Program Director, IIP

Steven Konsek, SBIR/STTR Program Director, IIP

Glenn Larsen, SBIR/STTR Program Director, IIP

Rajesh Mehta, SBIR/STTR Program Director, IIP

Ben Schrag, SBIR/STTR Program Director, IIP

Ruth Shuman, SBIR/STTR Program Director, IIP

Jesus Soriano, SBIR/STTR Program Director, IIP

Murali Nair, SBIR/STTR Program Director, IIP

George Vermont, SBIR/STTR Expert, IIP

Lindsay D'Ambrosio, Science Assistant, IIP

Amanda May, Program Support Manager, IIP

Caroline Hayer, Program Specialist, IIP

Willis Phan, Program Specialist, IIP

Mary Konjevoda, Program Analyst, IIP

Christopher Campbell, Einstein Fellow, IIP

2.0 AGENDA

The agenda for the meeting is included below.

Wednesday, October 24

8:30 am	Light Refreshments
9:00 am	Welcome & Introductions (Tom Knight & Grace Wang)
	Review & Approve May 2012 Meeting Minutes (Tom Knight)
9:30 am	IIP Overview, Personnel Update & Future Strategies (Grace Wang)
10:15 am	Reauthorization Update (Joe Hennessey) SBIR/STTR Program Updates (Joe Hennessey)
10:30 am	Break
10:45 am	Lineage <ul style="list-style-type: none">• STTR solicitation of Synthetic Biology and Biosensing (Ruth Shuman)• STTR solicitation of Sustainability (Jesus Soriano) Operational Excellence <ul style="list-style-type: none">• Virtual Panels (Juan Figueroa)• SBIR/STTR Best Practices (Ben Schrag, Cheryl Albus)
12:00 pm	Working Lunch <ul style="list-style-type: none">• Getting the Word Out (Josh Chamot-OLPA)
1:00 pm	Globally Competitive Preeminent Workforce <ul style="list-style-type: none">• Phase I Diversity Data (Lindsay D'Ambrosio)• ASEE & Broadening Participation (Lindsay D'Ambrosio)
1:30 p.m.	Outreach Strategies-Group Discussion <ul style="list-style-type: none">• Group 1 Prakash/Rajesh• Group 2 Glenn/Steven
2:15 pm	Report Out
2:45 pm	Break
3:00 pm	Commercialization <ul style="list-style-type: none">• Innovation Accelerator Update (Murali Nair)Impact Assessment• Phase II Award Outcomes (George Vermont)• SBIR/STTR Assessment Update & DIMS Demo (Cheryl Albus & Alexandra Medina-Borja)

4:30 pm	Open Office time with SBIR Program Directors
6:30 pm	Dinner (Suggestion: A Town Bar & Grill in Ballston 🍷)

Thursday, October 25

8:30 am	Light Refreshments
9:00 am	AdCom Deliberations
10:15 am	Break
11:00 am	AdCom Feedback to NSF
12:00 pm	Adjourn

3.0 COMMENTS and FEEDBACK

The AdCom considered and provided feedback on the following discussion items from the meeting agenda.

Discussion and Approval of Minutes from Prior Meeting

After a brief discussion, the AdCom approved the minutes from the previous meetings, including the prior meeting held in May 2012.

Organizational Changes & Comments

The AdCom congratulates Cheryl Albus on her promotion to Director of Strategic Operations for the Engineering Directorate. We appreciate her many contributions within IIP and look forward to supporting her in her broader role within the Directorate.

The AdCom congratulates Joseph Hennessey for receiving the NSF Director's Award for Distinguished Service, and thanks him for his continued leadership. He is a national asset for the SBIR program, not only within NSF but also across other SBIR government agencies.

The AdCom thanks Thomas Peterson for his attendance at our meeting, and for his serve these last four years as the Deputy Director of the Engineering Directorate.

The AdCom welcomes new members of IIP, including insert all names here, and compliments the division for recruiting these talented new team members and filling its vacancies since our last meeting six months ago.

Industrial Innovation Partnership Overview

The AdCom supports the vision Grace Wang presented not only for SBIR/STTR but also for IIP. We are very impressed and look forward to her continued leadership.

We endorse her vision for IIP and its strategic components, including Education/Diversity, Leverage, Lineage, Operational Excellence, and Team, and encourage her and the IIP staff to continue its innovations to improve SBIR program management

The AdCom enthusiastically supports Grace's plans to assess outcomes in a more timely and more comprehensive way, as summarized in her "Assessment at Every Step" slide. We welcome discussion in our next meeting(s) on progress in this area, including assessment of

- Outreach, a.k.a. Phase 0, and improved market analysis of potential grantees, e.g., prospective expert opinion of future market trends, and retrospective analysis of recent trends such as angel and seed stage funding (including NASVF), and PWC's MoneyTree structure tracking investment trends.
- Submission, e.g., lineage, diversity, measurement of dwell time
- Portfolio Analysis, e.g., DIMS, diversity, job creation, and reporting to Congress
- How to make IIP support NSF overall interaction, mechanisms to influence research agenda and full use of the President's Council on Science and Technology (PCAST) to advance IIP and NSF interests and leadership.

The AdCom endorses IIP's plans to assess lineage and continue "in-reach" within NSF to capitalize on previously funded research.

Industrial Innovation Leadership: Reauthorization Review & the SBIR/STTR Budget

The AdCom thanks Grace for presenting IIP budget history, and requests similar updates in the future. If possible, the AdCom requests a breakdown by IIP program, e.g., by SBIR phases and/or supplement.

The AdCom encourages IIP to continue its efforts to collaborate with the SBA and other agencies to implement the new law as quickly as possible.

The AdCom is pleased the SBIR reauthorization includes a provision that reserves 3% for administrative activities, and reaffirms its prior recommendations on how these funds can be directed as summarized in our

minutes from May 2011. In addition, the AdCom recommends that IIP work with other SBIR-granting agencies to pool some of this 3% to fund cross-agency SBIR administration. These funds could be used for the national SBIR conference or for other activities that benefit all agencies in the SBIR program, e.g., assessment of outcomes from companies that have received SBIR grants from multiple agencies.

Given the increased SBIR/STTR percentages included in the Reauthorization, AdCom feels now is a critical time to revisit the IIP strategic plan to ensure it reflects the expanded funding and additional resources now available to achieve IIP's vision and mission. Specifically, AdCom recommends IIP:

- Ensure appropriate funding for administration and travel to address concerns about Program Director workload, and create additional mechanisms to allow travel to our grantees.
- Continued investment in systems or support staff to
 - increase operating efficiency to address the expanded workload, and
 - improve "assessment at every step."
- Implement IIP's plans to increase the size of STTR Phase I and SBIR/STTR Phase II awards, and to increase the number of awards and award rates, as budgets allow.

STTR

The AdCom endorses the plans for STTR as presented by Ruth Shuman and Jesus Soriano, and applauds their "in-reach" within NSF to commercialize the prior investments made by NSF within the academic community.

These plans are a great example of how IIP can support the overall NSF strategy, as stated by Dr. Suresh in his presentation of the NSF FY2013 Budget in February 2012: "[oneNSF will] fuel multidisciplinary initiatives to leverage NSF resources in new ways to boost innovation and meet national needs."

NSF Media Office

The AdCom thanks Josh Chamont for attending our meeting and presenting the numerous outreach activities led by his office.

We encourage IIP to continue to leverage the Media Office to publicize grantee success stories and a way to support the IIP mission.

Virtual Panels

The AdCom supports the use of virtual panels, and other techniques to refine the proposal review process, so that review panels are equally effective but with a reduced workload on the part of Program Managers.

The AdCom notes that the virtual panels are likely to increase representation from under-represented groups and from under-represented geographical areas, which are the primary benefits. Cost savings are a secondary benefit.

The AdCom recommends:

- IIP continue to track statistics on virtual panels, and to survey participants on virtual panels, to assess and continuously improve their effectiveness.
- IIP conduct controlled experiments to assess if virtual panels impact decisions compared to traditional face-to-face panels.
- IIP document its criteria for the types of panels that are well-suited or poorly-suited for virtual panels.
- IIP learn about best practices for virtual meetings from private enterprises or other agencies.

Peer Review Process & Portfolio Management

The AdComm recommends IIP investigate additional methods (beyond virtual panels) for improving the peer review process and portfolio management.

Examples include:

- expanding IIP's current practice within Phase IIB in which grantees travel to NSF for face-to-face interviews to other grant awards.
- expanding IIP's ability to have Program Director's travel to and hold panels in locations other than NSF.
- locating some IIP staff members outside of Washington, D.C., closer to under-represented geographical areas, perhaps leveraging the geographically distributed infrastructure of the Innovation Accelerator program or the iCorps regional centers.

Best Practices

The AdCom endorses IIP plans to document best practices. Keep going. This is an impressive start and a refreshing example of how IIP is open to new approaches and procedures in its pursuit of operational excellence.

The AdCom expects these efforts to:

- Improve decisions and outcomes
- Streamline the proposal review process to reduce Program Director workload and potentially eliminate or offload selected activities, so that PDs can spend their time on more value-added activities such as site visits, outreach, and commercialization assistance and experimentation leading to best practices on how to influence and leverage basic science grants and the establishment of priority themes, all of which should support their full empowerment within IIP."
- Lead to rapid development and adoption of best practices

The AdCom endorses the planned use of webinars and wikis for outreach and recommends:

- IIP record these webinars and publish them for asynchronous viewing. IIP should fund closed captioning on these recordings to comply with federal law.
- IIP compile and post a list of Frequently Asked Questions, as a way to disseminate best practices to potential grantees, and as a way to limit the workload required by Program Directors in Phase 0 periods.

Innovation Accelerator (IA)

The AdCom continues its support for the Innovation Accelerator as a valuable source of commercialization assistance for our Phase 2 grantees.

But the AdCom has three main concerns:

- A lack of understanding within IIP on the mechanism used to select Phase 2 grantees for the Innovation Accelerator program. Given that IA support is concentrated on just a subset of our Phase 2 grantees, we strongly request that the criteria for selecting IA participants be clearly documented and communicated. We request this be presented by IIP leadership at our next meeting.
- A lack of a balanced assessment of the results to date. Only positive outcomes were presented. What can we learn from all results to date, both negative and positive?
- A need to engage all Program Directors in IA to ensure this is as effective as possible.

This topic is the area of greatest concern from this AdCom meeting, and we would like IIP to highlight its plans in this area at our next meeting.

Given this concern, the AdCom has decided to re-establish its Subcommittee on the Innovation Accelerator, and the following members volunteer to serve to assist IIP continue to improve IA:

- Trish Costello (chair)
- Karen Kerr
- Tom Knight
- William Lockwood-Benet
- Richard Paul
- Karthik Ramani

Broadening Participation

The AdCom welcomes Lindsay D'Ambrosio and looks forward to working with her and IIP to broaden participation of underrepresented groups. We agree with her assessment that progress in this area has been disappointing to date.

We appreciate her presentation of data showing the low participation of underrepresented groups in recent panels.

We endorse IIP's plans to expand its supplements to fund the work of American Society for Engineering Education (ASEE) Fellows at SBIR/STTR grantees.

We recommend that IIP focus on increasing the number of Phase I proposals submitted from underrepresented groups. We request that IIP collect and present data tracking the number of Phase I proposals submitted from underrepresented groups in each AdCom meeting.

We continue to volunteer as needed to support these activities and will continue our Subcommittee on Outreach Activities to Broaden Participation. The Subcommittee includes:

- Karen Kerr
- Tom Knight
- Eugene Krentsel
- Ann Savoca
- William Lockwood-Benet

Assessment of Broader Impacts

The AdCom appreciates the presentation by Alexandra Medina-Borja on the Engineering Directorate's plans to improve assessment. We invite her to attend AdCom meetings in the future so that we can hear updates and how IIP might support them. We welcome Alexandra's intention to use the Division Information Management System (DIMS) as the foundation for the ENG Directorate assessment.

With increased funding following SBIR Reauthorization, there is increased urgency and opportunity to get this job done, as discussed above. The AdCom endorses Lindsay D'Ambrosio's plans to continue work on Assessment within IIP.

The AdCom looks forward to discussing DIMS at our next meeting. This tool provides great assessment opportunities within IIP and within NSF.

The AdCom continues to volunteer to assist with these efforts. Members of the Subcommittee on Assessment include:

- Susan Butts
- Dick Paul
- Susan Preston
- Karthik Ramani
- Robert "Skip" Rung
- David Spencer
- E. Jennings Taylor

Assessment: Phase II Award Outcomes

The AdCom members thank George Vermont for his continuing success collecting assessment data from Phase II grantees, and appreciate his responsiveness to our prior recommendations.

We recommend, as an additional and separate assessment, outcomes that might be outside the scope of the original grant but the grant contributed to the company's success, especially when they lead to success stories that illustrate the broad IIP mission.

Office Hours and Discussion Groups with Program Managers

The AdCom appreciates the opportunity to spend time discussing topics with IIP Program Directors. These conversations were a highlight of the meeting, and confirm yet again the strength, dedication, and tremendous contributions from these critical members of IIP.

We encourage similar conversations with Program Directors in future meetings, and welcome input from the IIP Program Managers on topics they feel would be most valuable to discuss with the AdCom.

In hindsight, scheduling the office hours at the end of the day was a mistake. We would like them to have time on the agenda earlier in future meetings.

We recommend IIP investigate methods to elevate all Program Directors within the organizational structure so that our increasingly strong and capable PDs have greater autonomy and empowerment within IIP.

FUTURE MEETING

The next AdCom meeting will occur in Baltimore at the Phase 2 Grantees conference starting 8:30 a.m. May 16, 2013 and ending May 17, 2013 at noon.

AdCom members are invited to attend the conference before the meeting.

To further improve our AdCom effectiveness, we request that future meetings have the bare minimum PowerPoint slides, a schedule with sufficient time for interactive sessions with the Program Directors, and that IIP post the agenda and reading materials to all AdCom members in advance to the Wiki. We also endorse IIP's suggestion that the AdCom utilize on-line resources such as a Wiki site dedicated to AdCom materials and collaboration.

Proposed Agenda:

1. Update on IIP strategic goals
2. Innovation Accelerator. See our concerns above.
3. Discussions with Program Managers on topic(s) preselected to be of particular interest to the Program Managers. Please organize the time early in the first day to ensure sufficient time is available.
4. Outreach Activities to Broaden Participation. Please present updated data tracking the number of Phase I proposals submitted from underrepresented groups, and future plans to increase this statistic.

5. Assessment. Please present a demonstration of DIMS and an update on progress and plans. We invite Alexandra Medina-Borja to present if possible.
6. Deliberations and Report Out
 - a. A new suggestion: we would welcome a “report-out” from the IIP staff to the AdCom on how we can be more effective and helpful to them in achieving IIP’s mission